

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the present application.

### **Listing of Claims:**

**Claim 1 (currently amended):** A method of manufacturing a crystal of a group III-V compound, the method comprising:  
a deposition step of depositing a metal film on a substrate;  
a heat-treatment step of heat-treating the metal film under an atmosphere in which a metal-film patterning compound is present so that the metal film becomes patterned with a plurality of holes or grooves having an indefinite shape; and  
a growth step of growing a group III-V crystal on the post-heat-treated metal film.

**Claim 2 (currently amended):** A method of manufacturing a crystal of a group III-V compound, the method comprising:  
a deposition step of depositing a metal film on a substrate;  
a heat-treatment step of heat-treating the metal film under an atmosphere in which a metal-film patterning compound is present so that the metal film becomes patterned with a plurality of holes or grooves having an indefinite shape;  
a first growth step of growing a group III-V compound buffer film on the post-heat-treated metal film; and  
a second growth step of growing a group III-V crystal on the group III-V compound buffer film.

**Claim 3 (currently amended):** A group III-V crystal manufacturing method as set forth in claim 1, wherein:  
the holes or grooves formed in the metal film in said heat-treatment step have an average width of 2 nm to 5000 nm; and

the aperture fraction, being the percentage of the surface area that the holes or grooves occupy with respect to the substrate total surface area, is 5% to 80%.

**Claim 4 (previously presented):** A group III-V crystal manufacturing method as set forth in claim 1, characterized in that the substrate is silicon, sapphire, SiC, ZrB<sub>2</sub>, or a group III-V compound.

**Claim 5 (previously presented):** A group III-V crystal manufacturing method as set forth in claim 1, characterized in that the metal film contains titanium or vanadium.

**Claim 6 (previously presented):** A group III-V crystal manufacturing method as set forth in claim 1, wherein the method renders the thickness of the metal film to be 10 nm to 100 nm.

**Claim 7 (previously presented):** A group III-V crystal manufacturing method as set forth in claim 1, characterized in that the heat treatment is carried out at 800°C to 1200°C for 0.5 minutes to 20 minutes.

**Claim 8 (previously presented):** A group III-V compound crystal manufactured by a group III-V crystal manufacturing method as set forth in claim 1.

**Claim 9 (previously presented):** A group III-V compound crystal as set forth in claim 8, wherein the group III-V crystal is Ga<sub>x</sub>Al<sub>y</sub>In<sub>1-x-y</sub> ( $0 \leq x \leq 1$  and  $0 \leq y \leq 1$ ).

**Claim 10 (currently amended):** A group III-V crystal manufacturing method as set forth in claim 2, wherein:

the holes or grooves formed in the metal film in said heat-treatment step have an average width of 2 nm to 5000 nm; and

the aperture fraction, being the percentage of the surface area that the holes or grooves occupy with respect to the substrate total surface area, is 5% to 80%.

**Claim 11 (previously presented):** A group III-V crystal manufacturing method as set forth in claim 2, characterized in that the substrate is silicon, sapphire, SiC, ZrB<sub>2</sub>, or a group III-V compound.

**Claim 12 (previously presented):** A group III-V crystal manufacturing method as set forth in claim 2, characterized in that the metal film contains titanium or vanadium.

**Claim 13 (previously presented):** A group III-V crystal manufacturing method as set forth in claim 2, wherein the method renders the thickness of the metal film to be 10 nm to 100 nm.

**Claim 14 (previously presented):** A group III-V crystal manufacturing method as set forth in claim 2, characterized in that the heat treatment is carried out at 800°C to 1200°C for 0.5 minutes to 20 minutes.

**Claim 15 (previously presented):** A group III-V compound crystal manufactured by a group III-V crystal manufacturing method as set forth in claim 2.

**Claim 16 (previously presented):** A group III-V compound crystal as set forth in claim 15, wherein the group III-V crystal is Ga<sub>x</sub>Al<sub>y</sub>In<sub>1-x-y</sub> ( $0 \leq x \leq 1$  and  $0 \leq y \leq 1$ ).